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EXAMINER	
CHEN, PO WEI	
ART UNIT	**PAPER NUMBER**
2697	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/004,901	Applicant(s) MORGAN ET AL.	
	Examiner Po-Wei (Dennis) Chen	Art Unit 2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5,7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-35 are pending in this application. Claims 1, 16, 34 and 35 are independent claims.

This action is non-final

The present title of the invention is "Rendering Non-Interactive Three-Dimensional Content".

The Group Art Unit of the Examiner case is now 2697. Please use the proper Art Unit number to help us serve you better.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 7-9, 11, 14-21, 23-25, 27-28 and 31-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Borrel et al. (US 6,377,257; refer to as Borrel herein).

3. Regarding claim 1, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

A system for optimizing non-interactive three-dimensional image data (lines 47-55 of column 5). An optimizing encoder for generating three-dimensional rendering information optimized for real-time rendering of an image having an image quality within an error criteria of an image quality standard for a target computer system (lines 34-39 and 54-65 of column 6 and lines 8-21 of column 9 and Fig. 4 and 6). It is noted that the descriptor generation unit (element 406 of Fig. 4) generates rendering information for either server or client rendering. And

depending on the quality standard of the target computer system (client), higher, or lower quality images can be sent. While claim recites optimizing encoder, it is clear that the descriptor generation unit functions the same by generating rendering information for image improvement.

The optimizing encoder further having a model representing the target computer system for performing rendering of the rendering information (lines 54-58 of column 6). It is noted that the descriptor generation unit, or the optimizing encoder, have a model for sending information about if the target computer system (client) will perform the rendering process.

The target computer system represented being a type of computer system having a three-dimensional renderer (element 417 of Fig. 4).

4. Regarding claims 2 and 3, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The optimizing encoder performs an optimization of the three-dimensional rendering information based upon criteria including a graphics processor capability of the target computer system; the optimizing encoder performs an optimization of the three-dimensional rendering information based upon criteria including characteristics of a physical infrastructure for transferring the optimized three-dimensional rendering information to the target computer system (lines 28-46 of column 5 and 54-58 of column 6). It is noted that the descriptor generation unit, or the optimizing encoder, will generated rendering information in cases of server and/or client rendering. And the system will decide the rendering options by factors such as graphics processor capability (client three-dimensional graphics capabilities) and characteristics of physical infrastructure (available network bandwidth).

5. Regarding claim 4, Borrel discloses a method for delivering 3D graphics in a networked

environment comprising:

The physical infrastructure is the Internet (lines 33-36 of column 10).

6. Regarding claim 7, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The optimizing encoder performs an optimization of the three-dimensional rendering information based upon criteria including feedback information generated by the model during rendering of the three-dimensional rendering information (lines 48-54 of column 6 and lines 4-21 of column 9 and Fig. 4 and 6).

7. Regarding claims 8 and 9, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The feedback information includes a rendering time measurement for a subset of a scene and a scene (lines 54-67 of column 8 and lines 1-3 of column 9 and lines 20-26 of column 12). It is noted that one of the feedback information is the rate of processing images. And it is also noted that each scene has at least two parts for each geometric model which is then process by the system. Thus, the rendering time of each part of the scene or the whole scene is included in one of the feedback information.

8. Regarding claim 11, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The feedback information includes command error reporting (lines 11-19 of column 9). While claim recites command, it is clear that in a computer programming environment, each function can be consider as a command. Therefore, the error of the compositor of setting the

frame rate can be considered as a command error which feeds back to the server for further processing. Thus, limitation of claim is met.

9. Regarding claim 14, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The model is a graphics sub-system embodied in a peripheral of the optimizing encoder (lines 34-38 of column 6 and Fig. 4). It is noted that the model (element 409 of Fig. 4) is a sub-system in a peripheral (element 407) of the optimizing encoder, or the descriptor generation unit (element 406).

10. Regarding claim 15, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

An import unit (element 409; it is noted that the 3D facility acting as an import unit for which feed different data for different systems) for converting three-dimensional descriptions to an intermediate format suitable for a plurality of target computer systems; a multi-platform unit (elements 410-412; it is noted that elements 410-412 functions as a multi-platform unit which has different parts for different data for systems) for generating a first optimized three-dimensional data set by performing computations applicable to a plurality of target computer systems (lines 34-45 and 54-65 of column 6). It is noted that the description generation system generates different data for which is suitable for different client computers (target computer systems);

A target-specific optimization unit for generating a second optimized three-dimensional data set for a selected one of the target computer systems by performing at least one optimization applicable to the selected target system (lines 54-65 of column 6). It is noted that different data

is being generated by descriptor generation unit for different target computer system (client render or non-client render);

A bandwidth tuning unit for encoding the second optimized three-dimensional data set in a three-dimensional protocol accounting for the characteristics of a physical infrastructure from which the selected target computer system will access the second data set (lines 21-24 of column 9 and line 8-39 of column 10 and Fig. 9-10). It is noted that different data for different target systems requires different bandwidth for transferring.

11. Regarding claim 16, as statements presented above, with respective to claim 1 above, are incorporated herein. Borrel further discloses that the three-dimensional data being encoded in a protocol (lines 21-24 of column 9).

12. Regarding claim 17, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The three-dimensional protocol is a streaming protocol (lines 21-24 of column 9 and 8-11 of column 10). It is noted that the protocol is used to transfer streaming data.

13. Regarding claim 18, as statements presented above, with respect to claim 2 are incorporated herein.

14. Regarding claim 19, as statements presented above, with respect to claim 7 are incorporated herein.

15. Regarding claim 20, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

Encoding the rendering information to satisfy the bandwidth requirement of a physical infrastructure used for transferring the optimized information to the target computer system (lines 28-33 of column 5 and 8-29 of column 10).

16. Regarding claim 21, as statements presented above, with respect to claim 15 are incorporated herein.

17. Regarding claim 23, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving injecting corrective data (lines 17-19 of column 9 and Fig. 4 and 6).

18. Regarding claim 24, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization based on scheduling of object rendering and reordering of objects to be rendered (lines 39-48 of column 8 and Fig. 4).

19. Regarding claim 25, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an image based rendering technique (lines 12-15 of column 4).

20. Regarding claim 27, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving pre-computing runtime parameters (lines 46-54 of column 10).

21. Regarding claim 28, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving optimizing assets (lines 34-45 of column 6 and 33-57 of column 9 and Fig. 7). It is noted that the data generated by the system such as geometric models and z-buffer information can be considered as assets, which can be optimized by user feedbacks).

22. Regarding claim 31, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving manipulating geometry of objects within the image (lines 34-45 of column 6).

23. Regarding claim 32, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At lèast one optimization is an optimization involving visibility determination of objects within the image (lines 50-53 of column 2).

24. Regarding claim 33, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving compression (lines 34-42 of column 6).

25. Regarding claims 34 and 35, as statements presented above, with respect to claim 16 are incorporated herein.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. Claims 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrel et al. (US 6,377,257; refer to as Borrel herein).

28. Regarding claim 10, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

The optimizing encoder has a memory (element 405 of Fig. 4; the disk corresponds memory). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have the memory located in the optimizing encoder. Applicant has not disclosed that having the memory located in the optimizing encoder provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the memory arranged inside or outside of the optimizing encoder because the memory's ability to perform its function of receiving and transferring data is not effected by its location. Therefore, it would have been obvious to one of ordinary skill in this art to modify Borrel to obtain the invention as specified in claim 10.

The feedback information includes rendered pixels generated by the model in rendering the optimized three-dimensional rendering information (lines 33-57 of column 9 and Fig. 7). While claimed recites rendered pixels, it is clear that by sending back the geometric model rendered as a feedback, the pixels data of the geometric model are considered as rendered pixels.

29. Regarding claim 26, Borrel discloses a method for delivering 3D graphics in a networked environment comprising:

At least one optimization is an optimization involving deletion of unused data (lines 53-57 of column 2; by transmitting only visible geometry corresponds to deletion of unused data) or delaying of rendering of data (lines 62-67 of column 10 and lines 1-4 of column 11 and Fig. 11).

30. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrel et al. (US 6,377,257; refer to as Borrel herein) as applied to claim1 above, and further in view of Deering (US 6,525,725).

31. Regarding claims 5 and 6, it is noted that Borrel does not disclose the physical infrastructure is a digital versatile disc and the computer system is an interactive game console. Deering teaches a method to perform real-time morphing of three-dimensional objects that the physical infrastructure is a dvd (lines 7-12 of column 7 and Fig. 5) and the computer system can be replaced with game console (lines 41-44 of column 5 and Fig. 2). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Deering to provide the user another source for inputting the image data to be rendered and the advantage of improving the quality and realism of images displayed with a game console. Also, both Borrel and Deering are directed to a method of rendering three-dimensional objects in real-time.

32. Claims 12-13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrel et al. (US 6,377,257; refer to as Borrel herein) as applied to claim1 above, and further in view of Suzuki et al. (US 6,573,912; refer to as Suzuki herein).

33. Regarding claim 12, Borrel discloses a method for delivering 3D graphics in a networked

environment comprising:

The optimizing encoder has a memory (element 405 of Fig. 4; the disk corresponds to memory). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have the memory located in the optimizing encoder. Applicant has not disclosed that having the memory located in the optimizing encoder provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the memory arranged inside or outside of the optimizing encoder because the memory's ability to perform its function of receiving and transferring data is not effected by its location. Therefore, it would have been obvious to one of ordinary skill in this art to modify Borrel to obtain the invention as specified in claim 12.

And the model is a software simulation of the target computer system executing on the processor for rendering three-dimensional rendering information (lines 34-45 of column 6, lines 17-65 of column 16 and Fig. 4).

It is noted that Borrel does not disclose the optimizing encoder has a processor. Suzuki teaches a system that allows an Internet user to view three-dimensional objects that has a processor for generating rendering data (lines 21-22 of column 8 and abstract). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Suzuki to provide improvement over Borrel. Both Suzuki and Borrel provide a method which allows client (target system) system to perform real-time rendering on 3D objects to overcome the limitation of bandwidth (lines 46-47 of column 9 and Fig. 2 of Suzuki).

34. Regarding claim 13, it is noted that Borrel does not disclose the model comprises a graphics processor for rendering the optimized three-dimensional image data. Suzuki teaches a system that allows an Internet user to view three-dimensional objects that has a processor for generating three-dimensional model of scene structure (lines 45-47 of column 4 and lines 66-67 of column 7 and Fig. 1). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Suzuki to provide improvement over Borrel. Both Suzuki and Borrel provide a method which allows client (target system) system to perform real-time rendering on 3D objects to overcome the limitation of bandwidth (lines 46-47 of column 9 and Fig. 2 of Suzuki).

35. Regarding claim 29, it is noted that Borrel does not disclose at least one optimization is an optimization involving texture creation. Suzuki teaches a system that allows an Internet user to view three-dimensional objects that generates texture maps for creating three-dimensional objects (lines 22-26 of column 3). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Suzuki to provide improvement over Borrel. Both Suzuki and Borrel provide a method which allows client (target system) system to perform real-time rendering on 3D objects to overcome the limitation of bandwidth (lines 46-47 of column 9 and Fig. 2 of Suzuki).

36. Claims 22 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrel et al. (US 6,377,257; refer to as Borrel herein) as applied to claim1 above, and further in view of Duluk, Jr. et al. (US 6,229,553; refer to as Duluk herein).

37. Regarding claim 22, it is noted that Borrel does not disclose that at least one optimization is an optimization based on microcode generation. Duluk teaches a three-dimensional computer graphics system that utilize a microcode generation (lines 62-65 of column 32 and lines 24-26 of

column 33). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Duluk to provide a three-dimensional objects rendering with enhanced features (lines 55-59 of column 1, Duluk).

38. Regarding claim 30, it is noted that Borrel does not disclose that at least one optimization is an optimization involving shading computations. Duluk teaches a three-dimensional computer graphics system that utilize shading computations for rendering three-dimensional objects (lines 36-41 of column 8). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Duluk to provide a three-dimensional objects rendering with enhanced features (lines 55-59 of column 1, Duluk).

Conclusion

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gould et al. (US 6,331,852) disclose "Method and Apparatus for Providing a Three Dimensional Object on Live Video"

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Po-Wei (Dennis) Chen whose telephone number is (703) 305-8365. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass can be reached on (703) 305-4717. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-6743 for regular communications and (703) 308-6743 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Po-Wei (Dennis) Chen
Examiner
Art Unit 2697

Po-Wei (Dennis) Chen
July 9, 2003

Kee M. Tung
Primary Examiner